Abstract

A coordinatable system of geosynchronous (24-hour), inclined, and slightly elliptical satellite orbits enables spectrum re-use by forming "highways" of moving "slots" in the latitudes above and below the geostationary (GSO) belt worldwide. Each of a plurality of repeating ground tracks is shared by multiple satellite orbits (and thus slots). These are phased to achieve minimum specified angular separation from other slots using the same frequencies. Ground track (and thus orbital) parameters are chosen to realize specified shapes and are located at specified longitudes of symmetry to maximize the total number of slots. Consideration is given to specified constraints on service area coverage, elevation angle, and time coverage.